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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
DYKE, KERRI M	

ART UNIT	PAPER NUMBER
2667	

DATE MAILED: 11/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/027,761	LI ET AL.	
	Examiner	Art Unit	
	Kerri M. Dyke	2667	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 November 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 April 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Claims 1, 11-12, and 16 have been amended.

2. Claims 2-10, 13-15, and 17 are original.

Response to Arguments

3. Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-6, 8, and 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frank (US 4,491,947) in view of Van As et al. (US 5,327,428).

In regards to claim 1, Frank discloses a method comprising: receiving, at a local switch, a plurality of calls that are comprised of at least one packet-switched call and at least one circuit-switched call (column 3 line 53); determining a measure of the plurality of calls; based on the measure of the plurality of calls, allocating to circuit-switched calls a first set of resources from a plurality of resources between the local switch and a network switch and allocating to packet-switched calls a second set of resources from the plurality of resources between the local switch and the network switch. In column 1 lines 10-20 it is disclosed that the invention is described to work on a switch located within a satellite, but would work equally well in a terrestrial

environment. Use in a terrestrial environment is also disclosed in column 3 lines 57-64. Column 5 lines 6-10 disclose that the traffic is measured and the demand is entered into a traffic matrix, which is used for efficient scheduling, i.e. resources are allocated to the calls based upon the measure of the calls. The allocator, or scheduler, is described in column 5 lines 60-67. Frank's disclosed embodiment discloses the use of only one switch, but also discloses in column 3 line 61 that local switched system is an alternative embodiment. A switched system inherently has at least two switches, one of which can be labeled local and the other network.

Frank does not disclose allocating to the at least one circuit-switched call a first set of resources from a plurality of resources between the local switch and a network switch and allocating to the at least one packet-switched call a second set of resources from the plurality of resources between the local switch and the network switch, and wherein the first set of resources and the second set of resources are different.

Van As discloses allocating isochronous resources to circuit calls and allocating either asynchronous or synchronous resources to packet calls in column 6 lines 13-18. The resources are differentiated by the allowable delay variation. Isochronous calls are not allowed any delay variation, synchronous calls are allowed a delay variation within a limit, and asynchronous calls are allowed a very large delay variation.

It would have been obvious to one of ordinary skill in the art to allocate isochronous resources to circuits and (a)synchronous resources to packets, (as taught by Van As), in response to the measure of the calls, (as taught by Frank), because doing so allows for efficient use of bandwidth, optimal circuit/packet resource sharing, and on-demand allocation, all of which is taught by Van As in column 5 lines 55-61.

6. In regards to claim 2, Frank discloses the method of claim 1, wherein the measure of the plurality of calls is a measure of circuit-switched traffic. Column 5 lines 7-10 discloses that both circuit and packet demand are measured and stored in the traffic demand matrix.

7. In regards to claim 3, Frank discloses the method of claim 1, wherein the measure of the plurality of calls is a measure of circuit-switched calls. The number of calls is a type of traffic therefore it is inherently included in the method for measuring traffic disclosed in column 5 lines 7-10.

8. In regards to claim 4, Frank discloses the method of claim 1, wherein the measure of the plurality of calls is a measure of packet-switched traffic. Column 5 lines 7-10 discloses that both circuit and packet demand are measured and stored in the traffic demand matrix.

9. In regards to claim 5, Frank discloses the method of claim 1, wherein the measure of the plurality of calls is a measure of packet-switched calls. The number of calls is a type of traffic therefore it is inherently included in the method for measuring traffic disclosed in column 5 lines 7-10.

10. In regards to claim 6, Frank discloses the method of claim 1, further comprising the step of informing, by the local switch, the network switch of the allocation of the first set of resources and the second set of resources. Column 9 lines 30-31 disclose that the switch schedule, i.e. the resource allocations, is broadcast to the network switch by the local switch.

11. In regards to claim 8, Frank discloses the method of claim 1, further comprising the steps of: determining a second measure of the plurality of calls; when the second measure of the plurality of calls differs from first measure of the plurality of calls by a predetermined threshold, reallocating the plurality of resources between the local switch and a network switch between

packet- switched resources and circuit-switched resources. Column 5 line 18 discloses that the process of resource assignment is repetitive. Column 5 lines 67-68 and column 6 lines 1-2 disclose that each time slot's traffic matrix is based upon the previous traffic matrix assignments and new requests. In this case the predetermined threshold is any change in demand between time slots. The amount of resources assigned to circuit versus packet traffic is always changing based upon any changes in the demand matrix.

12. In regards to claim 11, Frank discloses a local switch (Figure 6) comprising: a receiver (labeled "from ground stations") for receiving a plurality calls comprising at least one packet-switched call and at least one circuit-switched call; a processor (element 4 labeled controller, which is well known in the art to be interchangeable with processor.) arranged and constructed to determine a measure of the plurality of calls (element 6) and, based on the distribution, allocating a plurality of resources (element 8) between packet-switched resources and circuit-switched resources, wherein the plurality of resources link the local switch and a network switch.

Frank does not disclose allocating to the at least one circuit-switched call a first set of resources from a plurality of resources between the local switch and a network switch and allocating to the at least one packet-switched call a second set of resources from the plurality of resources between the local switch and the network switch, and wherein the first set of resources and the second set of resources are different.

Van As discloses allocating isochronous resources to circuit calls and allocating either asynchronous or synchronous resources to packet calls in column 6 lines 13-18. The resources are differentiated by the allowable delay variation. Isochronous calls are not allowed any delay

variation, synchronous calls are allowed a delay variation within a limit, and asynchronous calls are allowed a very large delay variation.

It would have been obvious to one of ordinary skill in the art to allocate isochronous resources to circuits and (a)synchronous resources to packets, (as taught by Van As), in response to the measure of the calls, (as taught by Frank), because doing so allows for efficient use of bandwidth, optimal circuit/packet resource sharing, and on-demand allocation, all of which is taught by Van As in column 5 lines 55-61.

13. In regards to claim 12, Frank discloses the local switch of claim 11, wherein the processor is further arranged and constructed to determine a second measure of the plurality of calls and, based on the second distribution, reallocating the plurality of resources between packet-switched resources and circuit-switched resources. Column 5 line 18 discloses that the process of resource assignment is repetitive. Column 5 lines 67-68 and column 6 lines 1-2 disclose that each time slot's traffic matrix is based upon the previous traffic matrix assignments and new requests. In this case the predetermined threshold is any change in demand between time slots. The amount of resources assigned to circuit versus packet traffic is always changing based upon any changes in the demand matrix.

14. In regards to claim 13, Frank discloses the local switch of claim 11, wherein the measure of the plurality of calls is a measure of circuit-switched traffic. Column 5 lines 7-10 discloses that both circuit and packet demand are measured and stored in the traffic demand matrix.

15. In regards to claim 14, Frank discloses the local switch of claim 11, wherein the measure of the plurality of calls is a distribution of calls between circuit-switched and packet-switched. The distribution of calls is the ratio of packet to circuit switched calls. Column 5 lines 7-10

discloses that both circuit and packet demand are measured and stored in the traffic demand matrix. The ratio, or distribution, is inherently known because both the number of packet and circuit switched calls is known.

16. In regards to claim 15, Frank discloses the local switch of claim 11, further comprising a transmitter (Figure 6 labeled "to ground stations") for sending the distribution to the network switch.

17. Claims 7, 9, and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frank (US 4,491,947) in view of Chan et al. (US 4,556,972) further in view of Van As et al. (US 5,327,428).

18. In regards to claim 7, Frank discloses the method of claim 6, further comprising the step of allocating a plurality of network resources between packet-switched resources and circuit-switched resources based on the allocation of the first set of resources and the second set of resources, wherein the plurality of network resources link the network switch and at least one other switch.

Chan et al. discloses a network switch linked to at least one other switch by network resources in figure 1.

It would have been obvious to one of ordinary skill in the art to include more than one network switch between the local switches in order to take advantage of the previously established networks, as taught by Chan et al. in column 2 lines 3-6.

19. In regards to claim 9, Frank discloses the method of claim 8, further comprising the steps of: informing, by the local switch, the network switch of the reallocation of the plurality of

resources; reallocating, by the network switch, a plurality of network resources between packet-switched resources and circuit-switched resources based on the reallocation of the plurality of resources, wherein the plurality of network resources link the network switch and at least one other switch. Column 9 lines 30-31 disclose that the switch schedule, i.e. the resource allocations, is broadcast to the network switch by the local switch.

Chan et al. discloses a network switch linked to at least one other switch by network resources in figure 1.

It would have been obvious to one of ordinary skill in the art to include more than one network switch between the local switches in order to take advantage of the previously established networks, as taught by Chan et al. in column 2 lines 3-6.

20. In regards to claim 16, Frank discloses a network switch comprising: a line processor, arranged and constructed to process packet-switched calls and circuit-switched calls (Figure 6 element 4); a resource processor, arranged and constructed to allocate a plurality of network resources between packet-switched calls and circuit-switched calls (Figure 6 element 8). Frank does not disclose wherein the plurality of network resources links the network switch and at least one other switch.

Chan et al. discloses a network switch linked to at least one other switch by network resources in figure 1.

It would have been obvious to one of ordinary skill in the art to include more than one network switch between the local switches in order to take advantage of the previously established networks, as taught by Chan et al. in column 2 lines 3-6.

Frank does not disclose allocating to the at least one circuit-switched call a first set of resources from a plurality of resources between the local switch and a network switch and allocating to the at least one packet-switched call a second set of resources from the plurality of resources between the local switch and the network switch, and wherein the first set of resources and the second set of resources are different.

Van As discloses allocating isochronous resources to circuit calls and allocating either asynchronous or synchronous resources to packet calls in column 6 lines 13-18. The resources are differentiated by the allowable delay variation. Isochronous calls are not allowed any delay variation, synchronous calls are allowed a delay variation within a limit, and asynchronous calls are allowed a very large delay variation.

It would have been obvious to one of ordinary skill in the art to allocate isochronous resources to circuits and (a)synchronous resources to packets, (as taught by Van As), in response to the measure of the calls, (as taught by Frank), because doing so allows for efficient use of bandwidth, optimal circuit/packet resource sharing, and on-demand allocation, all of which is taught by Van As in column 5 lines 55-61.

21. In regards to claim 17, Frank and Chan et al. discloses the network switch of claim 16, wherein the call processor is further arranged and constructed to receive, from another switch, a request of allocation of resources between packet-switched calls and circuit-switched calls and, based on the request, to reallocate the plurality of network resources between packet-switched calls and circuit-switched calls. Frank discusses reallocation of resources in column 10 lines 30-43. Chan et al. also discusses reallocation of resources in column 6 lines 46-56.

22. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frank (US 4,491,947) in view of Gao et al. (US 6,738,350) further in view of Van As et al. (US 5,327,428).

23. In regards to claim 10, Frank discloses the steps of claim 1, but not a computer-readable signal-bearing medium comprising computer readable program code that performs the steps of claim 1.

Gao et al. discloses using computer readable medium in column 16 lines 58-60.

It would have been obvious to one of ordinary skill in the art to place the steps of resource allocation as taught by Frank and put them onto a computer readable medium as taught by Gao et al.

The motivation for doing so would have been to allow the use of the latest techniques without costly replacement of hardware. It is relatively easy to replace software code by uploading the code through the network. On the other hand, it is quite costly to replace hardware, as disclosed in column 1 lines 62-66.

Conclusion

24. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kerri M. Dyke whose telephone number is (571) 272-0542. The examiner can normally be reached on Monday through Friday, 7:00 am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on (571) 272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

kmd

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11/23/05